NuMI Beam Simulation - Bug #4894

Running g4numi throws energy non-conservation warning messages

11/01/2013 05:23 PM - Robert Hatcher

Status:	New	**Start date:**	11/01/2013
Priority:	Normal	**Due date:**	
Assignee:		**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:		**Spent time:**	0.00 hour

Description

When running g4numi with Geant v4.9.6p01a there are numerous

```
Processing particles #: 0 to 24999
G4Fragment::CalculateExcitationEnergy(): WARNING
Fragment: A =  26, Z =  12, U = -7.594e-01 MeV  IsStable= true
         P = (-1.148e+01,9.023e+01,1.774e+02) MeV   E = 2.420e+04 MeV

-------- WWWW ------- G4Exception-START -------- WWWW -------
*** G4Exception : had012
     issued by : G4HadronicProcess:CheckResult()
Warning: Bad energy non-conservation detected, will re-sample the interaction
Process / Model: NeutronInelastic / FTFP
Primary: neutron (2112), E= 6171.9, target nucleus (6,12)
E(initial - final) = 6430.92 MeV.

*** This is just a warning message. ***
-------- WWWW -------- G4Exception-END --------- WWWW -------

-------- WWWW ------- G4Exception-START -------- WWWW -------
*** G4Exception : had012
     issued by : G4HadronicProcess:CheckResult()
Warning: Bad energy non-conservation detected, will re-sample the interaction
Process / Model: NeutronInelastic / FTFP
Primary: neutron (2112), E= 39202.8, target nucleus (6,12)
E(initial - final) = 5470.45 MeV.

*** This is just a warning message. ***
-------- WWWW -------- G4Exception-END --------- WWWW -------
```

History

#1 - 11/01/2013 05:29 PM - Robert Hatcher

Quoting from 2013-10-30 email(s) from Robert Hatcher to Prabhjot Singh:

Reading the message carefully seems to imply that indeed these are *just* warnings and that it caught itself trying to do something stupid and went back and re-worked the problem (e.g. "will re-sample the interaction").

I think for now you should just proceed with whatever you're doing w/ g4numi and treat these as noisy internal warnings to G4 itself.

One expert I asked, responded with:

```
As far as I can tell, it would fail if it took more than 100 attempts to re-sample. I do not see a way to supp
ress the warnings.
There is a claim that it gets better with 9.6.p02
```

Where I *think* what he means by "fail" here is that it would throw a harder exception (ie. error rather than warning) if after 100 tries it continued to fail energy conservation.